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Full-Time Health Services in Nova Scotia

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IN 1934 a survey of the Department of Public Health of Nova Scotia was made by a competent outside observer, Dr. W. A. McIntosh, who came to us through the courtesy of the International Health Division of The Rockefeller Foundation. A report with recommendations was submitted in January, 1935. One of the principal recommendations was that, for public health administration purposes, the Province should be divided into four health units, districts, or divisions, each under a trained medical health officer. Dr. McIntosh wisely advised the establishment of but one division at first to see whether or not we were proceeding in the proper direction. Under a fellowship procured from the Foundation, one of our medical officers took postgraduate work in public health at the School of Hygiene, University of Toronto, and upon his return the first unit was opened. For the first few years financial aid was received from the Foundation. Since then, maintenance costs have been borne entirely by the Province. We soon realized that an advanced step had been taken. We argued that if one unit was beneficial, several would be even more so. Steps were, therefore, taken to establish other units as speedily as possible, and through the continuing good offices of Dr. John A. Ferrell and Dr. McIntosh and their associates in The Rockefeller Foundation, further fellowships were provided. The Province is now divided into five units with a trained officer in charge of each.

Here it is only proper to indicate how much we appreciate the assistance so generously given to our Department by The Rockefeller Foundation. Through it, thirteen members of the Provincial staff have already been trained: five medical officers, one medical statistician and epidemiologist, one public health engineer, five public health nurses, and one nursing supervisor. Other fellowships are pending. This is not all. Some years ago the Honourable F. R. Davis, M.D.,

Minister of Health, again approached The Rockefeller Foundation on behalf of Halifax City, with the result that Dr. McIntosh and Dr. D. Bruce Wilson were detailed to survey the city health services. Some of their recommendations have already been implemented and others will be acted upon when trained personnel becomes available. Already two medical fellowships have been granted to Halifax City. Dr. Wilson was also requisitioned to study the health endeavour of the city, towns and municipality of Cape Breton County. A report on this undertaking will soon be made. On a population basis, Cape Breton is the second largest county of the Province.

The division of the Province, outside of the City of Halifax, into five health units was completed towards the end of 1938, and until the outbreak of war in September, 1939, satisfactory progress was made in adding trained personnel. The recruiting of persons into civilian health departments was necessarily delayed through enlistment into the Services of many men and women from the medical, dental, engineering and nursing professions, as well as technicians. We strove hard to maintain our organization, but despite our best efforts we lost many of our public health nurses. Owing to the important place Nova Scotia occupies in national defence, many new and some unusual health problems were thrust upon the Province. It was only through devotion to duty and by many overtime hours of toil that our officers were able to remove or alleviate the many public health hazards that arose.

The present personnel of the five provincial health units is as follows:

Cape Breton Island Health Unit: Two medical health officers, eleven public health nurses, one nurse supervisor, two sanitary inspectors, and two clerks.

Northumberland Unit: One medical health officer, six public health nurses, one sanitary inspector, and two clerks.

Fundy Unit: One medical health officer, five public health nurses, one sanitary inspector, and two clerks.

Western Unit: One medical health officer, four health nurses, two sanitary inspectors, and two clerks.

Atlantic Unit: One medical health officer, three public health nurses, and one clerk.

Attached to the central office are the Minister of Health, the Deputy Minister of Health, a medical statistician and epidemiologist, a public health engineer, a superintendent of public health nursing service, bacteriological and pathological laboratories with medical directors and staffs, a staff of statistical and general clerks and stenographers, a director of physical fitness, a supervisor of physical fitness, two assistant supervisors, and a nutritionist. A travelling dental clinic operated in the remote sections during the spring, summer and autumn but this service had to be discontinued during the war years because our dental surgeon joined the Armed Services.

In addition, each of the sixty-six towns and municipalities has a part-time medical health officer, board of health, and sanitary inspector. It is not the purpose here to debate the relative merits of full-time and part-time officers. Many of the part-time men accomplish much, while others do little. Until sufficient full-time officers are placed in the field, many of the duties of the part-time men

cannot be attempted. It will be seen, however, that the collective effort of the part-time men constitutes a valuable contribution to public health. The unit officers provide leadership and endeavour to standardize and correlate the work of the local services.

The present staff of the Halifax City Health Department consists of a trained Commissioner of Health, a trained medical assistant, a superintendent of health, eight nurses, one nurse supervisor, seven sanitary inspectors, and three clerks and stenographers.

During the past three years few subjects have received more attention than so-called "health insurance". All interested organizations have been given an opportunity of presenting their views to the Federal Parliamentary Committee engaged in a study of the subject. The medical, public health, dental and nursing professions, hospital administrators, labour, agriculture, industry and other bodies have presented briefs setting forth their views. There has thus accumulated a stock of valuable information from which it should be possible, some day, to design a system giving general medical and public health care which will be satisfactory to all concerned. In the briefs submitted, one thing stands out boldly, and that is the importance given to public health in any national plan for insurance. In the suggestions that follow for the expansion of full-time health services, this will be kept in mind, and the scope of these suggested services will be considered in the light of a probable health insurance plan.

The area of Nova Scotia is 21,428 square miles and the population, according to the 1941 census, is 577,962. Since the war there has been, and is, a substantial additional floating population which cannot be estimated. The five Provincial units serve a permanent population of about 507,000. One has 150,000, one 107,000, two 90,000 each, and one 70,000. The average population is, therefore, a little more than 100,000, and the suggested needs of each will be based on this figure. Two years ago, Dr. J. T. Phair, Deputy Minister of the Ontario Department of Health, made a most valuable survey respecting the public health needs of the five eastern provinces of Canada in connection with health insurance. Dr. Phair used the 100,000-unit basis, which is another reason for my adhering to it. Dr. F. W. Jackson, Deputy Minister of Health and Public Welfare of Manitoba, carried out a similar survey in the four western provinces.

To give a reasonably adequate service, it is thought that the following staff members per unit are required: five trained physicians, twenty public health nurses, one nurse supervisor, eight sanitary inspectors, and six clerk-stenographers. In all the units, the public health engineer might work from the central administration office, having been relieved of much routine by the trained sanitary inspectors. He could act as expert consultant and adviser in the major undertakings relative to water, milk and waste disposal. A director of venereal-disease control attached to the central office would appear to be a necessary staff addition. This officer's duty would be to receive and send to the appropriate unit officers confidential information and to receive and deal with the reports sent back from the units. In addition, he would generally direct the venereal-disease control program. Besides these, a director of tuberculosis control, a director of

public health education, an assistant to the Deputy Minister, and the necessary additions to the laboratory and clerical staffs would be required.

Provision should be made for a dental health program which could be operated either centrally or through the units, depending upon the extent of the work attempted. An educational program only might be well centralized. If, in addition to educational efforts, some remediable work in isolated sections is considered, then operation through units is desirable.

It does not necessarily follow that the unit system based on 100,000 population would have to be followed. With staffs as outlined, there would be a certain flexibility which would permit of rapid and easily manoeuvred changes in organization, if and when experience or emergency indicated these to be necessary. For example, it might be found desirable to further decentralize and form smaller or county units in any given area—in which case the personnel is at hand to place directors with the required sub-staffs in the smaller counties, and proportionally larger staffs in the more populous counties. The point is that, with adequate staff members, any one of several systems might be successfully launched and continued.

In suggesting the above-mentioned numbers of unit officers, it is assumed that under a health-insurance scheme certain phases of preventive medicine would become an important part of the general practitioner's everyday duty for which he would be paid. It is understood such participation was desired by the Canadian Medical Association, which represented the practising physicians during the hearings before the various committees on health insurance. Health departments welcome such participation. It would consist in pre-natal care of the expectant mother, post-natal care of the mother, and supervision of the baby and pre-school child including vaccination and inoculation against all diseases for which we have well-established immunizing agents. With such a system well established, it would probably require the time of only one unit officer in the field of maternal and child hygiene, and one for school hygiene. The others would be responsible for communicable-disease control, sanitation, nutrition, industrial hygiene, health education and the many problems of a health department.

Halifax City may well be considered another health unit. The McIntosh-Wilson report recommends for this unit three public health doctors, one part-time doctor, one business manager, one sanitary engineer, fifteen public health nurses, one nurse supervisor, and the necessary number of sanitary inspectors, clerks and stenographers.

The estimated cost of maintaining this enlarged service is:

Provincial Department of Health	$750,000 annually
Halifax City	$120,000 "

This amount appears large, but it is not when one considers that it represents only a small fraction of the cost of illness. A few years ago we endeavoured to determine the proportion of health budgets used for prevention. While this was not an easy task, it appeared to be 10 to 12 per cent. It is true that some items of hospital expenditure (not included) have a preventive aspect. If these were added, the 10-12 per cent might rise to 14-16 per cent. With this percentage spent on prevention, it is obvious that the discoveries of preventive medicine are

not used to the extent they should be, and that the total amount spent on preventive measures is quite inadequate. More must be spent in an attempt to reduce the cost of illness, which is now imposing a very heavy burden upon the country.

It is easy to say that expenditures for any purpose should be increased, but it is not so easy to find the necessary funds. In this instance, where is the money to come from? The answer is from Provincial sources, and to a considerable extent from the Federal Government, through substantial grants-in-aid. For many years the Dominion has apparently accepted the dictum that the care of the public health is a joint responsibility of Federal, Provincial and municipal governments. There is, therefore, nothing inconsistent in further national financial participation, especially since the Federal Government possesses much greater taxing facilities than does the Provincial. Unless adequate amounts are granted, in particular to the poorer ones, the Provinces will not be able to give their people the health services to which they are entitled. In the United States grants from the Federal Government, under the Social Security Act, have been made with good effect. If this arrangement is necessary in the United States in order to provide adequate health programs, it is equally essential in Canada.

Findings on Re-Schick Testing of Air Force Personnel

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IN June 1941 the Royal Canadian Air Force instituted a program of diphtheria immunization covering all personnel. This step was taken in view of the fact that fifty per cent of adult males in the Service had been shown to be susceptible to diphtheria as judged by the Schick test and because of the anticipated risk of infection in the several theatres of war. The program called for the Schick testing of all personnel on entry into the Service and for the immunization* of all susceptibles (1) (2) (3).

A preliminary study made in December, 1943, suggested that approximately one-fifth of all Schick-positive personnel who received two doses of alum-precipitated diphtheria toxoid are Schick-positive when re-Schick tested six to twelve months later. This investigation was made for the purpose of securing further data on the subject and of assessing the influence of age and interval after toxoid on subsequent immunity as judged by the Schick test.

Scope and Method

Re-Schick tests were done at several R.C.A.F. stations on 964 airmen, in 693 of whom the original Schick test had been read as positive, and in 271 as negative (final reading). All airmen whose original Schick test had been read as positive had had two doses of alum-precipitated diphtheria toxoid at varying intervals before re-testing. The final original and re-Schick test results, as well as age and interval after toxoid, were available. In addition, test readings at twenty-four hours as well as at six days were obtained for 625 airmen whose tests were read as negative or "sensitive" at twenty-four hours.

In conducting the re-Schick tests, standard Schick test technique was employed, using Schick test materials** produced by the Connaught Laboratories, University of Toronto. Analysis of the re-Schick test findings versus the original test results was made by age and interval from the last dose of toxoid.

Observations

The final re-Schick test readings (6th day) in relation to original test results are set out in Table I.

Of those men whose original Schick test had been positive and who had had two doses of diphtheria toxoid (693), 18.2 per cent were Schick-positive

[1]*Wing Commander.* [2]*Squadron Leader.* [3]*Flight Sergeant.*

**Two doses of 1.0 cc. each of alum-precipitated toxoid are given at an interval of four weeks to all personnel read as Schick-positive either at 24-48 hours or at 5-7 days. "Schick-sensitives" receive no toxoid.*

***The Schick test control used is diphtheria toxoid diluted to contain 0.1 Lf's per cc.*

TABLE I

ORIGINAL AND RE-SCHICK TEST FINDINGS
964 MALE AIR FORCE PERSONNEL

Re-Schick Test Result	Original Schick Test Result				Total
	Positive		Negative		
	No.	Per cent	No.	Per cent	
Positive	126	18.2	10	3.7	136
Negative	420	60.6	208	76.7	628
Sensitive	147	21.2	53	19.6	200
Total	693	100.0	271	100.0	964

TABLE II

RE-SCHICK TEST READINGS—24 HOURS AND 6TH DAY

Original Schick	Re-Schick Test Reading*			Total
	6-day reading	24-hour reading		
		Negative	Sensitive	
Positive	Positive	35	22	57
	Negative	268	71	339
	Sensitive	12	32	44
	Total	315	125	440
Negative	Positive	5	2	7
	Negative	135	21	156
	Sensitive	7	15	22
	Total	147	38	185

*Positives not re-read at the 6th day.

TABLE III

FINAL RE-SCHICK TEST READING VS. INTERVAL FROM ORIGINAL TEST
ORIGINAL SCHICK TEST NEGATIVE

Interval (months)	Re-Schick Test Result*						Total
	Positive		Negative		Sensitive		
	No.	%	No.	%	No.	%	
Less than 3	1	7.7	6	46.1	6	46.2	13
3 to 6	2	2.7	53	71.6	19	25.7	74
6 to 9	4	4.8	63	75.9	16	19.3	83
9 to 12	3	7.3	29	70.8	9	21.9	41
12 to 24	0	—	32	97.0	1	3.0	33
24 and over	0	—	25	92.6	2	7.4	27
Total	10	3.7	208	76.7	53	19.6	271

and 21.2 per cent "sensitive". Of those whose original test was negative (271), 76.7 per cent were still Schick negative, 19.6 per cent "sensitive", and only 3.7 per cent were found to be Schick-positive.

Double Schick test readings were secured on 625 airmen. In 462 of these, the 24-hour reading was negative and in 163, "sensitive".* The relationships between the first two test readings and the original final Schick reading are given in Table II.

In the group whose original Schick test was positive (440), 11.1 per cent of those read as negative at twenty-four hours (315) were positive at six days. Of the 125 cases read as "sensitive" at twenty-four hours, 17.6 per cent were "sensitive-positive," 56.8 per cent "sensitive-negative", and 25.6 per cent "sensitive-uninterpretable" at six days.

In the group originally negative (185), 3.4 per cent of those negative at twenty-four hours (147) were positive at six days. Of the (38) cases "sensitive" at twenty-four hours, 2 were read as "sensitive-positive", 21 as "sensitive-negative", and 15 as "sensitive-uninterpretable" at six days.

An analysis of the re-Schick test findings in men originally Schick-negative (271), by interval from the original Schick test, is given in Table III.

The number of cases found to be Schick-positive on re-test is so small that no practical conclusions can be drawn from these data in respect to loss of immunity among Schick-negatives with time. All that can be said is that the "turn-over" in a group of adult males living in a R.C.A.F. environment in Canada is small (of the order of 5 per cent).

The proportion of personnel originally Schick-negative who were read as "sensitive" on re-test varies with the time elapsed since the original Schick test. Of the 211 who had a Schick test less than a year before, 50 (23.7 per cent) were sensitive. Of the 60 in whom a year or more had elapsed since the original Schick test, only three were sensitive.

An analysis by age of the re-test results of personnel whose original Schick test was negative is set out in Table IV.

There are no significant differences in proportion in the several age groups.

The re-Schick test findings in the 693 men originally Schick-positive and who received two doses of alum-precipitated diphtheria toxoid, by interval from the second dose of toxoid, are presented in Table V.

The proportion of individuals "sensitive" on re-test decreases as the interval from the second dose of toxoid increases. Of 258 men who had received their second dose of toxoid within six months of the re-test, 76 (29.5 per cent) were "sensitive". Of 435 men who had received their second dose of toxoid six months or more before re-test, 71 (16.3 per cent) were "sensitive".

The data on personnel who were *Schick-positive* on re-test is of greater practical interest. Of those re-tested within the first six months after toxoid, 7.4 per cent were Schick-positive; of those re-tested between six and twelve months after the second dose of toxoid 20.0 per cent were positive, and of

**In the R.C.A.F. program only those tests read as "negative" at 24-48 hours are re-read on the 6th day.*

TABLE IV

FINAL RE-SCHICK TEST RESULTS VS. AGE
ORIGINAL SCHICK TEST NEGATIVE

Age	Re-Schick Test Reading						Total
	Positive		Negative		Sensitive		
	No.	%	No.	%	No.	%	
Under 20	2	1.9	84	80.0	19	18.1	105
20–24	6	6.3	69	72.7	20	21.0	95
25–29	2	5.3	29	76.3	7	18.4	38
30 and over	0	—	19	67.5	5	20.8	24
Total	10	3.8	201	76.7	51	19.5	262*

*Age not available in 9 cases.

TABLE V

RE-SCHICK TEST RESULTS VS. INTERVAL FROM LAST INOCULATION
ORIGINAL SCHICK TEST POSITIVE

Interval (months)	Re-Schick Test Result						Total
	Positive		Negative		Sensitive		
	No.	%	No.	%	No.	%	
Less than 3	6	8.5	41	57.7	24	33.8	71
3–6	13	7.0	122	65.2	52	27.8	187
6–9	31	17.3	122	68.2	26	14.5	179
9–12	26	26.5	54	55.1	18	18.4	98
12–24	37	33.1	60	53.5	15	13.4	112
24 and over	13	28.2	21	45.7	12	26.1	46
Total	126	18.2	420	60.6	147	21.2	693

TABLE VI

RE-SCHICK TEST RESULTS VS. AGE
ORIGINAL SCHICK TEST POSITIVE

Age	Re-Schick Test Result						Total
	Positive		Negative		Sensitive		
	No.	%	No.	%	No.	%	
Under 20	12	7.3	115	69.7	38	23.0	165
20–24	28	10.7	179	68.6	54	20.7	261
25–29	45	31.2	68	47.3	31	21.5	144
30 and over	40	33.3	56	46.7	24	20.0	120
Total	125	18.1	418	60.6	147	21.3	690*

*Age not available in 3 cases.

those receiving toxoid a year or more before re-test, 31.2 per cent were positive. These differences are statistically significant.

Two facts appear to be established by these data. First, a small proportion of Schick-positive adult males are not immunized by two doses of alum-precipitated diphtheria toxoid. Second, the proportion of individuals afforded protection against diphtheria, as judged by the Schick test, by two doses of alum-precipitated diphtheria toxoid progressively decreases with interval after toxoid.

Re-Schick test results of men originally Schick-positive, by age, are given in Table VI.

There are no apparent significant variations in sensitivity with age. The proportion positive on re-test, however, increases with age. Of those under 25 years of age, 9.6 per cent were positive on re-test compared with 32.2 per cent of those 25 years of age or over.

To determine the extent to which variations in elapsed time since the second dose of toxoid may affect the differences in Table VI, analysis of the data by age and interval was made (Table VII).

TABLE VII

PERCENTAGE POSITIVE ON RE-SCHICK TEST BY AGE AND TIME SINCE TOXOID ORIGINAL SCHICK TEST POSITIVE

Interval (months)	Age								All Ages	
	Under 20		20–24		25–29		30+			
	No.	% Pos.	No.	% Pos.	No.	% Pos.	No.	% Pos.	No.	% Pos.
Under 6....	94	3.2	104	2.9	42	16.7	17	35.3	257	7.4
6–12.....	68	11.8	110	14.5	55	36.4	46	26.1	279	20.1
12–24.....	2	50.0	35	22.9	38	34.2	33	45.5	108	34.3
24 and over.	1	—	12	8.4	9	55.6*	24	29.2	46	28.2
Total....	165	7.3	261	10.7	144	31.2	120	33.3	690	18.1

It would appear that the inclusion of airmen with greater time elapsed since the second dose of toxoid accounts for the greater part of the difference in the proportion found positive on the re-Schick test under 20 years of age and those 20 to 24 years of age.

In the group re-tested within six months of the last dose of toxoid, 3.0 per cent of those under 25 years of age and 22.0 per cent of those 25 years and over were positive. Of the group re-tested six months or more after the last dose of toxoid, 14.9 per cent of those under 25 years of age and 35.1 per cent of those 25 years and over were positive. This is a difference of 11.9 per cent for those under 25 and 13.9 per cent for those 25 and over.

The difference, by ages, in the proportion positive less than 6 months after the toxoid may indicate either that during these months the older men lost their immunity much more rapidly than the younger ones *or* that they do not respond as well to toxoid as the younger group.

Summary

1. Less than 4 per cent of airmen who were originally Schick-negative were Schick-positive on the re-Schick test; about one in five was "sensitive".

2. The findings of this study suggest that the Schick sensitivity apparently acquired by the administration of two doses of alum-precipitated toxoid to the originally Schick-positive group decreases as the interval from the last dose of toxoid increases.

3. Approximately 7 per cent of personnel re-Schick tested within six months after receiving two doses of alum-precipitated diphtheria toxoid were still Schick-positive. This proportion increased significantly with interval after toxoid so that approximately 20 per cent were re-Schick positive at 6-12 months and almost one-third at 1-2 years after toxoid.

4. The proportion Schick-positive on re-test among those receiving toxoid was much higher for persons 25 years of age and over than for those under 25.

References

1. Sellers, A. H.: Canad. Pub. Health J., 1941, **32**:509.
2. *Ibid.*, Canad. Pub. Health J., 1942, **33**:575.
3. *Ibid.*, Proceedings of the Eighteenth Meeting of the Executive of the Associate Committee on Aviation Medical Research, National Research Council of Canada, Ottawa, December 3, 1942.

Salmonellosis---A Public Health Problem

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ALTHOUGH many years have elapsed since Moses led the Israelites out of Egypt, many of his exhortations have continued to be extremely practical even to the present. One order issued by him (Deuteronomy XXIII: 12, 13) reads as follows—"Thou shalt have a place also without the camp, whither thou shalt go forth abroad: and thou shalt have a paddle upon thy weapon, and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee."

This sanitary concept has prevailed through the ages, with some remarkable exceptions, and in this scientific era we pride ourselves on the achievements of sewage disposal, the protection of milk, food and water, and other measures designed to prevent the spread of enteric disease.

In spite of all this, Nature has a way of dampening our complacency and making us realize that her secrets are many and her favours limited.

Not content with the discovery of the typhoid, paratyphoid and dysentery bacilli, the bacteriologists have visited on us a relatively new aggregation of bacteria called the *Salmonellae*. Since 1885 when the first bacterium of this group, *S. cholera-suis* or *suipestifer*, was named in honour of the discoverer, Daniel E. Salmon, more than one hundred Salmonella types have been named, the majority of which have been associated with human disease. According to the Kaufmann-White Schema, both the paratyphoids and *E. typhi* belong in this classification, but from long usage it appears improbable that these fevers will lose their characteristic names. Until a few years ago we should have been content to accept the diagnosis of paratyphoid fever as covering the majority of Salmonella infections, but laboratory practice now classifies these infections as separate entities.

Clinically, paratyphoid fever is more closely related to Salmonella infections other than typhoid, in respect to short incubation period, less severe symptomatology and earlier convalescence. However, there are exceptions, and many types present pictures indistinguishable from typhoid except by laboratory differentiation.

Despite their possession of common antigens, Salmonellae may be identified by means of agglutination absorption tests and categorized according to the complex antigenic formulae of the Kaufmann-White Schema. As stated by Holmes (1), their specific identities are indicated by the fact that although infection by one member may result in the appearance of group agglutinins, no immunity is conferred against subsequent infection by other members of the group. The Kaufmann-White classification was recommended for adoption by the Salmonella Subcommittee of the International Society of Microbiologists in 1934, and an International Salmonella Centre was established at the State Serum Institute, Copenhagen. Sera and cultures are supplied from

this Institute to laboratories which perform serological diagnoses. Such a centre has been established in the Western Division of the Connaught Laboratories, located in the University of British Columbia, Vancouver.

Salmonellae are readily destroyed by heat but produce a heat-stable toxin. Savage (2) has suggested that this toxin may cause symptoms of poisoning when food vehicles have been contaminated. However, Dack (3) states that filtrates or heat-stable products of a freshly isolated culture after passage through man are harmless when fed to man. Dolman (4) has also questioned the role of these toxins in human symptomatology when associated with food poisoning. At the present time the evidence suggests that Salmonella food-poisoning is essentially due to infection and the role that toxins may play is indefinite.

Salmonella infections have been usually associated with "food poisoning." In fact, the 6th edition of "The Control of Communicable Diseases," 1945, published by the American Public Health Association, lists Salmonellosis under Food Infections. Cases have been traced to a wide variety of foods, the early history of epidemics from *B. enteriditis* and *B. aertrycke* representing classical illustrations. Animals, both domestic and wild, fowls and flies may suffer from infection and pass the infection to man through a wide variety of foods, including meat products and eggs. In the case of flies, the infection may be carried through the egg, larva, and pupa to the second generation. Salmonellae have been isolated from commercial egg preparations. Mosquitoes may serve as additional vectors. Rats and mice may transmit infection. The list of possibilities appears endless. As stated by Edwards and Bruner (5), "The occurrence of most of the organisms in a number of animal species and in man indicates the general lack of host specificity."

Members of the Salmonella group grow rapidly in most foodstuffs without producing much evidence of their presence. Koser (6) found that all members of the group multiplied rapidly in the liquor of several cooked vegetables, with the exception of highly acid sauerkraut. In fruit juices a rapid destruction of the organisms takes place. Under ordinary household conditions organisms will multiply to a considerable extent in 24-72 hours, producing such slight changes in colour and odour as to be readily overlooked. Sutherland and Berger (7), while investigating an epidemic due to *S. dublin*, found that it was caused by infected raw milk and one of the cows was discovered to be excreting the organism. Of 250 market meat samples in Kentucky (8), 5.2 per cent were positive for Salmonellae. Stone (9) found a positive rate of 2.2 per cent among 2000 food handlers examined, in contrast to 0.25 per cent positive for shigellae. It was stated that foodhandlers were generally asymptomatic and were associated with small epidemic outbreaks of food poisoning and diarrhoea.

Salmonellosis is stated to have a short incubation period, ranging from 6 to 48 hours and usually about 24 hours. The disease in man may be indistinguishable from typhoid, although the symptoms are usually milder. The onset is usually sudden, with abdominal pain, fever, nausea, vomiting and diarrhoea. It may present itself in several clinical manifestations although there is less tendency for the organisms to localize than in typhoid. Strong (10) recognizes several types, viz. dysenteric, nephritic, rheumatic, and influenzal. Pulmonary involvement has also been reported (11), and the organisms may

also localize in the meninges. Several cases of infective jaundice have been attributed to paratyphoid infection, as have also various local infections such as pyelitis. The organism may early appear in the blood and, after a few days, in the faeces. Cases with enteritis have frequent mucoid grayish-to-green stools and in severe cases blood is passed. The fastigium is usually 3 or 4 days, although debility may persist for a time. Herpes, rose spots and a palpable spleen are rarely observed. In the more severe cases leucopenia with increase in large mononuclears is suggestive. Mortality rates are quoted as from 1-2 per cent, the aged and very young being most susceptible. There does not seem to be any specific correlation between clinical symptomatology and type of infection.

Laboratory diagnosis is established by the finding of Salmonellae in samples submitted. Blood cultures in early stages may be positive. It appears that specific agglutinins do not develop in every case and there may be cross-agglutination with typhoid types. The difficulties in setting up a blood-agglutination service to identify Salmonellae can be imagined. However, blood agglutination does help to distinguish the infections from typhoid fever; and as Rubenstein, Feemster and Smith (12) suggest, significant titres may be found for all types, utilizing paratyphoid B antigen. The authors point out that the laboratory is of prime importance in stressing the relative importance of looking for human carriers or of establishing a chain of events leading from the infected or carrier animal to man. This article gives an excellent review of 811 cases of Salmonellosis including paratyphoid B found in Massachusetts 1937-44. Twenty-two types in all were isolated. Prominently mentioned were *S. typhi murium*, found in 45.7 per cent, *S. newport* in 11.8 per cent, *S. oranienberg* in 6.7 per cent, and *S. paratyphosus* B in 6.2 per cent of cases. Sporadic cases were found as well as those picked up through epidemic investigation. The survival of the organisms in the intestinal tract is of interest. After sixty-seven weeks 4.9 per cent of those infected with *S. paratyphosus* B were still excreting the organism in the faeces. No cases of typhi-murium infection were excreting the organism although 1.3 per cent were still positive at sixty weeks; also after sixty-seven weeks 1.1 per cent of cases with other types were still positive. It was suggested that *S. typhi murium* may be harboured solely in the intestinal tract, and the role of diverticulae is emphasized. Burt (13), however, followed one case for four years and *S. typhi murium* was intermittently found over this period. X-ray showed calculus and loss of gall-bladder function. Finally at operation *S. typhi murium* was isolated from the gall-bladder membrane, the bile and the centre of the gall stone. Following the operation all specimens were negative.

Rubenstein, Feemster and Smith (12) also grouped their cases clinically. In 59.8 per cent of cases the picture was predominantly that of gastroenteritis, 15.4 per cent showed continual fever, and subclinical infection was noted in 22.8 per cent of cases. The authors conclude by stating: "Although Salmonella organisms are common to man, animals and birds, the interchange between lower animals and man may prove not to be the most significant factor in the spread of Salmonellosis." Studies among immediate household contacts of 237 sporadic cases revealed multiple infections in 24.9 per cent of cases.

One feels that the recommendation regarding isolation of cases with Salmonellosis, contained in the 6th edition of "The Control of Communicable Diseases", does not go far enough. The item reads as follows: "Exclusion from foodhandling and occupations involving the care of children until clinical recovery." It is suggested that the criteria of recovery in the public-health sense should include the absence of the offending organism in faeces and urine.

With Salmonellosis the laboratory has presented us with a new set of diagnostic terms which have to be translated into clinical and public-health practice. It is difficult enough to tell a person that he is suffering from Salmonellosis of the Oranienberg type without having him suffer a relapse on the spot, but to find the source of infection in sporadic cases is still more difficult. Apart from routine check of human contacts, are we to investigate the droppings of birds, conduct post-mortem examinations on domestic animals, send flies and eggs to the laboratory for examination? The possibilities are limitless but I presume that, apart from specific examinations following epidemic outbreaks, our investigations should be limited to questioning and selecting only those factors which appear to have a direct bearing on transmission.

The following table portrays the incidence in recent years of enteric disease in the Vancouver Metropolitan Area.

REPORTED CASES AND CARRIERS OF ENTERIC DISEASE
VANCOUVER METROPOLITAN AREA

	Typhoid Fever	Paratyphoid B	Bac. Dysentery	Salmonellosis
1942.....	5	0	0	0
1943.....	2	9	9	1
1944.....	12	1	20	19

The increasing frequency of Salmonellosis cannot be overlooked. Thus far in 1945, there does not appear to be any hope that fewer cases will be reported. *S. typhi murium* was isolated in 80 per cent of cases and *S. newport* in the rest. *S. oranienberg* has been reported in 1945 and *S. cholera-suis* has been found nearby in recent years. One adult death from *S. newport* associated with bronchopneumonia was reported in 1944. Seventy-five per cent of cases were under five years of age and the remainder over twenty. Most of the cases were discovered in August and September. The majority of cases which have been followed by stool check are negative after four months from onset, although one case is still positive after six months. Altogether eleven homes were affected in 1944 and in four homes secondary cases developed or asymptomatic carriers were found. In one family three asymptomatic cases proven by stool culture were discovered.

The sporadic development of cases in different parts of our area did not suggest a common source and our investigations failed to suggest other than human contact as the possible source.

The recently revised Communicable Disease Regulations of British

Columbia, 1945, makes Salmonellosis a reportable disease. This should result in more cases being found. Physicians and hospitals are warned to be on the lookout for suspicious cases and to take necessary tests for diagnosis. It is pure folly to suggest that everyone with diarrhoea should have a stool test. The Laboratories are already carrying a heavy load and discretion must be used in submitting samples. On the other hand, this lends an argument in favour of expanding diagnostic facilities, particularly where other than human sources are considered. However, the judicious testing of suspicious cases, particularly in hospitals and institutions and where history suggests multiple cases, should do much toward controlling the condition. Blood cultures and blood agglutination may help to prove or disprove the diagnosis. The danger of human, bird and animal transmission to food, milk and water calls for renewed effort to close the gaps in our sanitary control measures. The danger of direct transfer of infection from animals and birds to surface water supplies emphasizes the need for chlorination. We may even have to revive the examination of foodhandlers, with particular emphasis on diagnostic tests. The possibility of food-borne outbreaks cannot be denied. Cross-connections and the dangers from back-syphonage in mains should be considered. Leak-proof valves should be placed on all water installations in homes and industry to prevent back-syphonage and the escape of contaminated material into public water supplies.

Control measures for Salmonellosis should be as stringent as for typhoid, and cases followed until proved negative. While we may assume that the majority of Salmonella infections spread by way of the intestinal tract, other modes of transmission must be considered. Varela and Olarti (14) revealed that Salmonellae were present in 8 per cent of 185 pairs of tonsils routinely removed at operation. However, the review did not state if the persons were suffering at the time from clinical disease.

Salmonellosis appears here to stay. Whether the term sticks or we go back to the old paratyphoid designation is immaterial. It should broaden our public-health consciousness, call for more specific laboratory diagnosis, and encourage our executive bodies to meet a more demanding challenge to the public health. The doctrine of Moses still applies today. With a few refinements we can do no better than follow his example.

REFERENCES

(1) Holmes, W. H.: Bacillary and Rickettsial Infections—Acute and Chronic. New York: The Macmillan Co., 1940.
(2) Savage, W. G.: J. Prev. Med., 1932, *6*: 425.
(3) Dack, G. M.: Food Poisoning. Chicago: The University of Chicago Press, 1943.
(4) Dolman, C. E.: Canad. J. Pub. Health, 1943, *34*: 97.
(5) Edwards, P. R., and Bruner, D. W.: J. Infect. Dis., 1943, *72*: 58.
(6) Koser, A.: J. Infect. Dis., 1922, *31*: 79.
(7) Sutherland, P. L., and Berger, F. M.: Brit. M.J., 1944, *90*: 488.
(8) Scherajo, M., and Weaver, R. H.: Am. J. Hyg., 1943, *37*: 211.
(9) Stone, W. S.: Am. J. Pub. Health, 1943, *33*: 706.
(10) Strong, R. D.: Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, 7th Ed., 1944, Vol. 1. Philadelphia: The Blakiston Co.
(11) Eschweiler, P. C., Wahlin, V. G., and Snow, A.: Ann. Intern. Med., 1944, *20*: 275.
(12) Rubenstein, A. D., Feemster, R. F., and Smith, H. M.: Am. J. Pub. Health, 1944, *34*: 841.
(13) Burt, H.: J. Path. & Bact. 1944, *56*: 209.
(14) Varela, G., and Olarti, J.: Rev. d. Inst. Salub. y enferm. trop., 1942. *3*: 289. (Review by Scott, H. H.: Bull. Hyg., 1943, *18*: 505.)

Food Poisoning due to Salmonella Newport

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IN July 1944 an outbreak of acute gastro-enteritis occurred in an Ontario city in a general hospital with a bed capacity of 128 adults. Nurses, kitchen staff, and patients were attacked.

Onset of Illness and Symptoms

Two nurses suffered attacks on the morning of July 14, and throughout the afternoon and evening about 35 per cent of the nurses, 55 per cent of the kitchen staff, and 30 per cent of the patients were similarly affected. The first symptom noted was malaise followed by nausea and in many cases vomiting. Diarrhoea was present in most of the cases, and in some the onset was accompanied by a chill. All of those attacked had fever lasting several days, with temperatures as high as 103°F. In several patients on whom white blood counts were made, there was no leucocytosis.

TABLE I

ISOLATION OF SALMONELLA NEWPORT FROM FAECES OF SICK NURSES IN AN OUTBREAK OF FOOD POISONING

Number Ill	Salmonella Newport		Faeces not Examined	
	Present	Absent		
Student Nurses—16.....	12	0	4	
Graduate Nurses—9.....	1	0	8	

Bacteriology

Faecal specimens were examined from 13 nurses, 21 of the kitchen staff, and 6 patients. The specimens were received in 30 per cent glycerin saline solution and plated on SS agar, McConkey's bile salt agar and brilliant green agar (1). From a number of these specimens, as shown in the tables, an organism was isolated which was proved by cultural and serological reactions to be *Salmonella newport*, having antigenic factors VI, VIII, e h, 1 2 3.

Nurses

Table I shows the results of faeces examination in 16 student and 9 graduate nurses who were ill. In 12 of the 16 student nurses faeces specimens showed the presence of *S. newport*. Eleven of the twelve specimens were taken on the fourth day of illness and one on the fifteenth day. From the nine graduate nurses only one specimen was collected, on the fourth day. From this specimen *S. newport* was isolated. No follow-up specimens were collected from these nurses.

Kitchen Staff

Table II shows the results of faeces examination of 24 members of the kitchen staff, 13 of whom were ill and 11 who were not attacked. Of the 13 who were ill, 2 were casual labour and left the hospital before specimens were obtained. From the remaining 11, *S. newport* was isolated from the faeces in only 3 instances, two of the specimens having been taken on the fourth day of illness and one on the tenth day. From 8 of the sick kitchen employees no *S. newport* was isolated, the specimens having been taken on the tenth day.

From the faeces of the 11 members of the kitchen staff who were not attacked, *S. newport* was isolated in only 3. All these specimens were taken on the tenth day. One of these 3 was the chef, whose faeces became negative some time between the tenth and the twenty-eighth day and were still negative on the forty-sixth day. Another kitchen worker whose faeces showed *S. newport* on the tenth day was also negative on the twenty-sixth day. A third person did not begin work in the kitchen until the second day after the outbreak.

Hospital Patients

Six specimens of faeces were examined from patients who had been admitted with a variety of diseases and who developed diarrhoea and vomiting on July 14th. From four of these, *S. newport* was isolated. In one of these patients fever persisted for eleven days.

TABLE II

ISOLATION OF SALMONELLA NEWPORT FROM FAECES OF KITCHEN STAFF IN AN OUTBREAK OF FOOD POISONING

Number Ill	Salmonella Newport		Faeces not Examined	
	Present	Absent		
Kitchen staff ill	3	8	2	
Kitchen staff without symptoms	3	8	0	

On August 21st, thirty-seven days after the outbreak, a patient was admitted with a provisional diagnosis of colitis, in whom diarrhoea was a prominent symptom. On August 23rd, *S. newport* was found in blood culture. This patient had had no connection with the hospital previously and had had no contact with any of the hospital cases. A number of physicians stated that cases of food poisoning had occurred in the city in persons who had no connection with the hospital.

Source of the Outbreak

During the forty-eight hours before the outbreak, only two foods had been taken in common by nurses, kitchen staff, and patients. These were a chocolate pudding, freshly prepared and served at the noon meal on July 13th, and sliced cold beef served at the evening meal on the same day. Although neither of these foods were available for bacteriological examination, cold beef

would appear to be the source of the infection. The chef and one of the kitchen help who were not ill but had *S. newport* in the faeces may have infected the meat or may have been infected with the otherwise contaminated food without presenting clinical symptoms.

Discussion

The interval of twelve to eighteen hours between the eating of the infected food and the appearance of the first symptoms, and the comparatively gradual onset, indicate that this epidemic was of the "infective" rather than the "toxic" type of food poisoning. The "infective" food poisonings are generally due to organisms of the Salmonella group, the toxins being produced in the intestinal canal and not preformed in the food. The "toxic" type of food poisoning, generally due to preformed toxins produced by certain strains of staphylococci, exhibits a more rapid and sudden onset than was the case here.

The importance of early examination of faecal specimens is emphasized. Of the stools of the sick nurses examined on the fourth day, 92 per cent showed *S. newport;* while of the stools of the kitchen staff who were ill, not examined until the tenth day, only 10 per cent were positive.

Cherry (2) reports on the presence of various organisms of the Salmonella group in retail pork and beef. It is possible that the meat used in this hospital may not have been properly cooked and that standing at room temperature may have permitted the multiplication of organisms present in it.

Stone (3) reports on the incidence of carriers of Salmonella in Panama, where 40 carriers of Salmonella were found among 2000 food handlers examined. Some of the carriers were positive over a 60-day period. Most of these carriers gave no history of food poisoning within six months of the faeces examination. He is of the opinion that food handlers may be the source of explosive outbreaks of food poisoning. If in this epidemic the chef and the other kitchen worker were carriers, their faeces became negative between the tenth and twenty-sixth day of the outbreak. Since, however, other cases were occurring in the city in the same time, the food may have become infected otherwise than by a kitchen worker.

Summary

1. An outbreak of food poisoning due to *Salmonella newport*, involving 75 cases in a general hospital in a city in Ontario, is reported.

2. Approximately 35 per cent of the student nurses, 55 per cent of the kitchen staff, and 30 per cent of the patients were attacked.

3. Cold beef at the evening meal was the suspected food.

4. The hospital chef and one of the kitchen help were not attacked, but showed *S. newport* in their stools on the tenth day though not on the twenty-sixth day.

BIBLIOGRAPHY

(1) Edwards, P. R.: Standard Strains of Salmonella—Kentucky Agr. Exp. Sta. Circular 50, 1939.

(2) Cherry, W. B., Scherage, M., and Weaver, R. H.: The Occurrence of Salmonella in Retail Meat Products, Am. J. Hyg., 1943, *37*: 211.

(3) Stone, W. S.: Food Handlers in the Army and Their Relationship to Salmonella Food Poisoning. Am. J. Pub. Health, 1943, *33*: 706.

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PREPARATION FOR PUBLIC HEALTH NURSING

AT the close of the first World War the public health administrator found the need for a worker to make effective in the community the available knowledge concerning health and its promotion, and called upon the nursing profession to provide certain personnel to implement his program. With the acceptance by many of its members of the role of health teacher, there was a manifest need to supplement the basic training of the hospital school with special preparation in public health nursing. Hence in several Canadian universities there came into being the certificate course of one academic year which represented an initial attempt to prepare this worker who was destined to become the most numerous within the public health family.

More recently (following the lead of the University of British Columbia) several universities have offered undergraduate degree courses in nursing. These have followed various patterns: all of them including work in arts, in nursing and in public health nursing. A development of the last year or so has been the opportunity offered by several of these universities for the graduate nurse to add to the basic training of the hospital school two years of work (one of them in public health nursing) and thus to earn a degree in nursing. Of deeper significance to the public health administrator is a development in nursing education in one or two university centres (notably the University of Toronto) whereby, through the aegis of an independent nursing school, the student enrols for degree work in nursing which at the same time includes teaching in public health nursing; that is, throughout the entire course the preventive and the curative in nursing are interrelated and are given similar emphasis.

Thus the training for this field has evolved from that in which one year of preventive teaching is added to three years with curative emphasis in medicine and nursing, to a preparation which in its entirety purposes to emphasize the preventive as well as the curative, that is, from certificate work which represents preventive nursing taught much as an afterthought, to degree work which stands for the building up of health knowledge and attitudes throughout the entire preparation. And so, one or more of these varying types of training are offered by many universities within the Dominion, including the universities of British Columbia, Alberta, Manitoba, Western Ontario, Toronto, Ottawa, Quebec, and the University of Montreal.

To fill adequately posts of leadership in this field, the profession is sorely in need of young women with good home training and educational background, to which has been added a sound professional preparation. Admittedly, Medical Officers of Health from coast to coast are concerned with securing an efficient product for employment: they should be equally concerned with persuading the right type of young person to undertake the soundest training available so that public health nurses may be procured for all administrative levels, and particularly for posts of responsibility, in sufficient numbers to meet the demands of a rapidly expanding field. If necessary, arrangements should be made whereby financial assistance can be provided. The availability of adequate numbers of well-trained personnel throughout the Dominion therefore is contingent upon two matters, first a recognition of the need for sound preparation for public health nursing together with a knowledge of the various forms of training offered by Canadian universities, and secondly the recruitment of large numbers of young women of ability who may be thus fitted to take their place with other professional workers in the community's welfare services. In the achievement of this goal the public health administrator is counted upon to render signal assistance.

FLORENCE H. M. EMORY

THE EXECUTIVE COUNCIL PLANS THE ASSOCIATION'S POST-WAR WORK

AS PREVIOUSLY stated, the thirty-fourth annual meeting, which was to have been convened during the second week of November, was postponed in accordance with the request of the Transit Controller to curtail travel. The meeting, as now arranged, will be held in Toronto on May 6, 7 and 8, 1946. The executive functions of the annual meeting for the current year will be assumed by the Executive Council, which will meet in Ottawa on November 30th. The Council will review the present program of the Association and consider recommendations for the immediate post-war period.

With the close of the war, the appointment of a physician as full-time executive director of the Association is being implemented, and it is expected that announcement of this action will be made shortly. The contribution made by the Association in the advancement of public health in Canada needs no eulogy; the record of its thirty-five years' work speaks for itself. Important as this contribution has been, however, it is realized that it is not adequate to-day. The appointment of an executive director will be an important development in the Association's history and the first step in planning a wider post-war program.

Canada has an awareness of the importance of health. If many pitfalls are to be avoided, the considered opinions of the medical, dental, and nursing professions and of their public health leaders must be constantly presented. The Canadian Public Health Association has an outstanding opportunity to contribute to the real advancement of health.

News

Report on Voluntary Health Agencies

RECOMMENDING the revitalization and strengthening of the voluntary health agencies in the United States, the National Health Council (an affiliated group of eighteen health organizations) last month issued a report entitled "Voluntary Health Agencies—an Interpretive Study," by Selskar M. Gunn and Dr. Philip S. Platt. The report, which was supported by a grant from The Rockefeller Foundation, involved three years of field work and research on five hundred and sixty-eight voluntary agencies in sixty-five cities and twenty-nine states. The purpose of the study was to ascertain the present scope and effect of the work of the 20,000 voluntary health agencies in the United States, and to determine how they can obtain greater effectiveness in their respective areas. These agencies (exclusive of the Red Cross) at present have budgets of some fifty million dollars a year and enlist the active support of over 300,000 board members and professional advisers, as well as an even greater number of volunteer workers.

The results of the study emphasize the fine record of achievement of these agencies and credit them with much of the progress in public health during the twentieth century. These voluntary health agencies, the book states, "represent a form of enterprise that is likely to have a permanent and valuable role in our civilization." It asserts, however, that their independent and uncoördinated attacks upon specific diseases, without central or unified planning, have often resulted in confusing the public as to the goals of individual and public health. Organizational deficiencies on the local level have detracted from the effectiveness of the work, and have made for occasional duplication of effort and conflict between agencies, with resulting lack of balance in meeting emergent needs. The study emphasizes also that their separate and competitive appeals for support have brought, with a few striking exceptions, inadequate results, and that the funds available to the different agencies have often little relation to actual community health needs.

"The most striking fact is the marked unevenness of the voluntary health movement in this country," said Dr. Louis I. Dublin, Chairman of the Study, in his preface to the report. "Excellent societies abound; but many are inadequate. Because the development was a spontaneous growth in a variety of uncovered fields to meet newly organized needs, the movement necessarily has lacked central direction and planning. In the main, the health agencies have lagged in adapting their programs to the rapidly changing needs of their communities and have often neglected to align their efforts with those of the official agencies. The time has now come for more coördination of effort and for reorganization for the tasks that lie ahead."

The major recommendations of the Gunn-Platt report deal with suggestions for the improvement of the efficiency of the local agency and its more complete coördination with the activities of the national organizations. Such revitalizing of the local voluntary health agencies, it suggests, can be accomplished by:

1. A searching self-analysis by each agency of its present goals, activities, functions, methods and relationships. The report includes a "Self-Evaluation Schedule" by which each organization may check itself against standards of effectiveness.

2. The strengthening of executive and board membership by each agency.

3. The organization in each town or city of a Health Council, representing all related local agencies, to effect coördinated health planning. The report recommends that demonstrations of such organizations be launched in a few cities.

4. The simplification and unification of appeals for public support.

5. The transfer of appropriate activities to the official public agencies and the recognition of the primary position of leadership of the official agency.

On the national level, the authors cite the need for a strong central agency to give leadership and direction to the entire national health movement. For this purpose, the report suggests the expansion of the National Health Council, with a dynamic program and effective field services to function on request for member organizations throughout the country.

Finally, the authors recommend the pooling of the present separate competitive and con-

fusing money-raising appeals of the separate agencies into a nation-wide campaign, effective on the local, state and national levels. The two agencies with specially effective money-raising devices (the tuberculosis and infantile paralysis groups) should broaden their fields of interest and service. It advocates the preparation of a single combined health agency budget for every city, town and village. A technique similar to that of the National War Fund should be adopted for financing voluntary health work on a national basis.

The study was conducted under the direction of an executive committee composed of the following members: Louis I. Dublin, Ph.D., Chairman, 2nd Vice President and Statistician, Metropolitan Life Insurance Company; Reginald M. Atwater, M.D., Executive Secretary, American Public Health Association; Ira V. Hiscock, Sc.D., Professor of Public Health, Yale University; Bleecker Marquette, Executive Secretary, Public Health Federation, Cincinnati; and Emilie G. Sargent, R.N., Executive Director, Visiting Nurse Association, Detroit.

The 1944 Death Rate from Tuberculosis

ACCORDING to preliminary figures released by the Dominion Bureau of Statistics, Canada's death rate from tuberculosis in 1944 was the lowest ever recorded in the Dominion. The 1944 rate was 48 per 100,000 population, representing 5,743 deaths, while the 1943 rate was 52.3, or 6,168 deaths. Saskatchewan had the lowest rate, 25.3, and Quebec the highest, 75. Seven of the Provinces reported reductions, the largest being in Nova Scotia. Ontario's rate dropped from 28.1 in 1943 to 26.9 in 1944; Alberta's from 37.1 to 35.7; Manitoba's from 52.9 to 51.2; British Columbia's from 68.1 to 55.3; Nova Scotia's from 68.7 to 58.7; and Quebec's from 82.2 to 75.

The two Provinces reporting increases were Prince Edward Island and New Brunswick, both of which had experienced considerable reductions in 1943. The rate in Prince Edward Island rose from 46.2 to 63.7 and that in New Brunswick from 48.6 to 51.7.

In the opinion of Dr. G. J. Wherrett, Executive Secretary of the Canadian Tuberculosis Association, the record low rates attained in 1944 might indicate an end to a stalemate experienced during the war years and he was hopeful that Canada was about to return to the steady downward trend in tuberculosis mortality which characterized the five-year period before the war.

American Public Health Association to Accredit Schools of Public Health

THE COMMITTEE on Professional Education of the American Public Health Association, of which William P. Shepard, M.D., is chairman, is undertaking a program for the accreditation of schools of public health. The initiative for this project came originally from the Association of Schools of Public Health, in a resolution adopted in April, recommending that the American Public Health Association "create a properly constituted accrediting body to carry forward progressively a list of universities qualified with regard to program, personnel, and facilities, to offer adequate courses leading to the degrees of Master of Public Health, Doctor of Public Health, and the Diploma in Public Health." This was followed by a similar request to the Association from the Surgeon General's Committee on Postwar Training of the Public Health Service.

The Association has now inaugurated the project, with funds made available through the generosity of the Commonwealth Fund and with the appointment of Professor C.-E. A. Winslow of New Haven, Connecticut, as the counsellor in charge of the investigative work. He will be aided by persons experienced in the administration of health departments, chosen from various localities.

Accreditation will be based on a visit to the institution by a representative of the committee and on other data. A copy of the report of the staff will be submitted to the administrative head of the institution before submission to the Committee on Professional Education, and the committee will arrange a hearing for him or his representative if desired. Decisions of the committee will be finally subject to approval by the Executive Board of the Association. In certain cases, provisional accreditation may be granted, subject to the fulfilment of specified requirements within a stated time.

It is planned to concentrate first on the basic one year of training qualifying for the degree of Master of Public Health (in Canada, the Diploma in Public Health). At the same time, or subsequently, a list of institutions

will be accredited for the degree of Doctor of Public Health, perhaps involving specialization in particular administrative or clinical fields.

At a later date the program will be extended to consider facilities for training adapted to particular specialties such as health education; to such general university degrees as the M.S. and the Ph.D., which are given without specific designation but with specialization in basic areas related to public health (such as bacteriology or statistics); to specialized degrees in engineering and other fields related to public health; and to administrative areas suitable for practical field training before or after the basic year of training.

British Columbia

A CONSIDERABLE INCREASE in the number of public health nursing districts is indicated in the coming year. Seven public health nurses have received appointments to initiate generalized public health nursing service in newly organized districts in the rural areas of British Columbia. Others have been appointed to organize generalized programs where only a school service has been available. Replacements among the present staff have been met to carry on the work of the retiring public health nurses, those leaving for postgraduate work, and those leaving to be married. Requests for public health nurses for the further development and expansion of public health nursing service have of necessity been postponed until qualified personnel are available.

Saskatchewan

THE DIVISION OF HEALTH EDUCATION of the Department of Public Health has among its equipment four 16-mm. sound projectors, several silent projectors, and a recently acquired Sandwick reproducer, complete with film-strip and slide projector, and a microphone. The reproducer and its projector can be used to present film strips with synchronized recordings, or the projector alone may be used to screen film strips.

The Sandwick reproducer is also used in conjunction with ordinary 16-mm. film projectors, although the two outfits are operated independently. The reproducer plays gramaphone recordings at 78 r.p.m. or electrical transcriptions a 33 1/3 r.p.m. It is useful in the preparation of radio transcriptions which can be tested before they go on the air. Radio programs can also be played back for department officers who did not hear a broadcast, or for audience presentation.

The Division of Health Education has lately presented balanced programs to lay audiences, with musical interludes during film changes. The music is chosen to suit the pictures and the audience, and may range at quick choice from Chopin and Bach to boogie-woogie. In addition to this entertainment feature, it has become a practice to present film entertainment, particularly sing-song films or short travel pictures, during an evening's program.

The reproducer, equipped with five radio tubes, is capable of tremendous volume, and with the help of the portable microphone, provides a public-address system for large halls and outdoor events.

Manitoba

DR. C. R. DONOVAN, Director of Health Services in the Department of Health and Public Welfare and secretary to the Hospital Council of Manitoba, was one of four Manitoba representatives at the biennial convention of the Canadian Hospital Council held in Hamilton on September 19th and 20th. The other Manitoba representatives were C. E. Filmore and Miss L. W. Lethbridge, members of the Hospital Council, and His Honour J. M. George, chairman of the advisory commission under the new Health Services Act.

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MISS OLGA ANDERSON, 1945 graduate in Home Economics, University of Manitoba, has been awarded a Kellogg Foundation Fellowship to study public health education at the University of North Carolina, Chapel Hill. Miss Anderson taught school in Alberta and studied at Macdonald Institute, Guelph, Ontario, before taking her home economics course in Manitoba. Upon the completion of her course in public health, Miss Anderson will return to Manitoba to serve as a health educator with the Department of Health and Public Welfare.

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E. C. CHAMBERLAYNE, B.V.Sc., D.V.P.H., veterinary graduate of Guelph Agricultural College and the School of Hygiene, University of Toronto, has been appointed Director of the Bureau of Food and Milk Control, Section of Environmental Sani-

tation. Before taking the course leading to the Diploma in Veterinary Public Health at the School of Hygiene, Dr. Chamberlayne was a food and milk inspector for the British Columbia and Dominion Governments.

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MISS FRANCIS H. WAUGH, B.A., R.N., has been appointed registrar and consultant for licensed practical nurses in Manitoba, under the Licensed Practical Nurses Act of 1945. Miss Waugh, a daughter of Dr. R. J. Waugh of Carberry, Manitoba, is a graduate of the University of Manitoba and of the Winnipeg General Hospital School of Nursing. She also undertook postgraduate training in teaching and supervision at the University of Minnesota. Miss Waugh has had a varied experience as teacher of nurses in the Portage la Prairie and Winnipeg General Hospitals, and as assistant to the executive secretary of the Manitoba Association of Registered Nurses.

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IN CO-OPERATION WITH the Bureau of Industrial Hygiene, Mrs. M. J. Vann, provincial nutritionist, has undertaken a nutrition study of all canteens operated in Winnipeg by the Canadian National Institute for the Blind.

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DR. R. H. RILEY, Health Commissioner for the State of Maryland, was a recent visitor, with Mrs. Riley, to the Department of Health and Public Welfare. Dr. Riley was particularly concerned with the prepayment-for-medical-care provisions of the Manitoba Health Plan, and the details of the municipal-doctor schemes. Mrs. Riley, a state nutritionist, showed keen interest in the work being done in this field in Manitoba.

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UNTIL a successor can be found, the duties of the late John Foggie, Chief Sanitary Inspector in the Department of Health and Public Welfare, are being carried on by Mr. K. G. MacQuarrie, formerly Sanitary Inspector with the Department, who recently returned from service with the Winnipeg Grenadiers to an appointment as District Inspector for the Winnipeg area.

Appointment of Dr. W. H. Cruickshank as Medical Director of the Bell Telephone Company

W. H. CRUICKSHANK, M.D., D.P.H., D. Psych., has been appointed Medical Director of The Bell Telephone Company of Canada, succeeding the late Dr. Grant Fleming.

Following his graduation in medicine from the University of Toronto in 1936, Dr. Cruickshank joined the Ontario Department of Health in December 1937, and for the ensuing six years was associated with the Hospital and Psychiatric Division and the Industrial Hygiene Division. In the same period he was the Ontario Compensation Board's consultant in occupational diseases.

While a member of the outpatients' staff of Toronto Western Hospital, Dr. Cruickshank assisted in organizing the wartime medical services at Victory Aircraft, Malton, and in 1943 he joined the active service forces. With the rank of major in the medical corps he served with distinction in Italy and northwestern Europe with the 5th Division.

As Medical Director of The Bell Telephone Company of Canada, Dr. Cruickshank will supervise and implement that company's broad policies of employee health maintenance which lay special emphasis on sickness prevention.

New Brunswick

DR. J. A. MELANSON, D.P.H., has been appointed Chief Medical Officer and Registrar General of Vital Statistics, succeeding Dr. C. W. MacMillan, who has resigned to join the staff of the Department of Health and Social Medicine at McGill University.

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DR. LIGUORI RICHARD has been appointed District Medical Health Officer of Madawaska County, succeeding Dr. J. P. Richard, who has been transferred to Restigouche County.

The Annual Meeting of the Health League of Canada

THE TWENTY-SIXTH ANNUAL MEETING of the Health League of Canada will be held in the Royal York Hotel, Toronto, on October 29, 30 and 31. The Honourable Brooke Claxton, Minister of National Health and Welfare, will address a dinner session on Monday, October 29. Copies of the program for the meeting are available from the office of the Health League, 111 Avenue Road, Toronto 5.

Appointments in the Department of National Health and Welfare

THE APPOINTMENT of G. D. W. Cameron, M.D., C.M., D.P.H., as Acting Director of Public Health Services in the Department of National Health and Welfare was announced in Ottawa on October 1st. He succeeds Dr. J. J. Heagerty, who has been appointed Special Assistant to the Deputy Minister of National Health. Dr. Cameron, who will continue to hold the position of Chief of the Laboratory of Hygiene, is a graduate of the Royal Military College, Kingston, and served in the First World War. He is a graduate in medicine of Queen's University and obtained the Diploma in Public Health from the University of Toronto. Before joining the former Department of Pensions and National Health in 1939, he was a member of the staff of the School of Hygiene and the Connaught Laboratories, University of Toronto. He is a past chairman of the Laboratory Section of the Canadian Public Health Association.

Announcement was made also of the appointment of Mr. J. G. A. Valin as Chief Dominion Analyst and of Dr. C. A. Morrell as Assistant Chief Dominion Analyst in the Department of National Health and Welfare. Mr. Valin and Dr. Morrell will be responsible for the administration of the Food and Drugs Act in Canada.

Mr. Valin was educated at the University of Ottawa and at McGill University. Two years after joining the Department of Inland Revenue in 1901 he was appointed Public Analyst. In 1921 he became chief of the newly organized branch laboratory in Montreal, where he remained until 1938 when he was appointed Assistant Chief Dominion Analyst. Mr. Valin was a member of the Board of Examiners under the old Adulteration Act and worked in a similar capacity for the Canadian Institute of Chemistry. He was also President of the Quebec Section of the Canadian Institute of Chemistry and has been Chairman of the Quebec Regional Group of the Professional Institute of the Civil Service of Canada, of which he is a life member.

Dr. Morrell received his M.A. from the University of Toronto and his Ph.D. from Harvard University. He also studied at Yale University and at University College, London, England. In 1928-29 he was a member of the Yellow Fever Commission connected with The Rockefeller Foundation and in 1932-33 was the holder of a travelling scholarship from the Royal Society of Canada. In 1930 he joined the Department of National Health as head of the Division of Pharmacology. Dr. Morrell is a member of the American Society of Pharmacology and Experimental Therapeutics, the American Pharmaceutical Association, the Canadian Physiological Society and the Chemical Institute of Canada.

Students Enrolled in the School of Hygiene, University of Toronto

THIRTY-FIVE PHYSICIANS are enrolled in the course leading to the Diploma in Public Health at the School of Hygiene, University of Toronto: G. L. Anderson, Sarnia, Ontario; P. A. Belanger, Ottawa, Ontario; J. S. Bell, Toronto, Ontario; B. Bucove, Toronto, Ontario; G. D. Caldbick, Haileybury, Ontario; L. M. Clark, Toronto, Ontario; B. C. Coles, Toronto, Ontario; H.W. Conran, Western Bay, Newfoundland; E. J. Cram, Toronto, Ontario; G. M. Dobbin, Kleinburg, Ontario; T. C. Dunlop, Toronto, Ontario; W. Fowler, Toronto, Ontario; G. M. Fraser, Peterborough, Ontario; W. H. Frost, Halifax, Nova Scotia; A. B. Gignac, Amqui, Quebec; W. S. Gilchrist, Angola, West Africa; P. E. Hamelin, Montreal, Quebec; C. E. Hookings, Devonshire, Bermuda; G. E. Large, Toronto; Ontario; H. J. Leeson, Toronto, Ontario; J. S. McCannel, Victoria, British Columbia; C. W. McCormack, Renfrew, Ontario; D. G. H. MacDonald, Toronto, Ontario; A. F. MacKay, Oshawa, Ontario; C. C. Manly, Winnipeg, Manitoba; J. M. Parker, Winnipeg, Manitoba; J. H. Preston, Port Arthur, Ontario; L. A. Richards, Jamaica, British West Indies; L. N. Roberts, Hamilton, Ontario; J. Robertson, Vancouver, British Columbia; H. Roy, Donnacona, Quebec; P. A. Scott, Picton, Ontario; R. A. Smillie, Niagara Falls, Ontario; V. L. Tennant, Jamaica, British West Indies; and H. Wior, Paris, France.

Dr. C. M. Oake, of Oakville, Ontario, is taking the course leading to the Diploma in Industrial Hygiene.

Five graduates in veterinary science are enrolled in the course leading to the Diploma in Veterinary Public Health: C. H. Bigland, Calgary, Alberta; H. L. Bryson, Winnipeg, Manitoba; D. R. MacDonald, Guelph, Ontario; and F. Rushton, Guelph, Ontario.

JOHN FOGGIE

FOR thirty-two years a public servant of the City of Winnipeg and the Province of Manitoba, John Foggie, Chief Sanitary Inspector in the Department of Health and Public Welfare, died on September 14th after a short illness. From 1912 to 1929, except for a period overseas with the Royal Army Medical Corps, Mr. Foggie was a sanitary inspector with the City Health Department. In 1929 he entered the Provincial service as sanitary inspector, and in 1939 assumed the post of Chief Sanitary Inspector. During the war years Mr. Foggie carried a heavy load of responsibilities, including food supervision for the Bureau of Food and Milk Control, and supervision of sanitation for military establishments and training centres in Manitoba. In recognition of this latter work, he was awarded the order, Member of the British Empire, in 1943. Mr. Foggie will be greatly missed by many friends in public health, not only in Manitoba but throughout Canada.

Books

Manual of Clinical Mycology. *Prepared under the auspices of the Division of Medical Sciences of the National Research Council. By members of the staff of Duke University School of Medicine. Philadelphia and London: The W. B. Saunders Company, 1945. Canadian agents: McAinsh & Co. Limited, Toronto. 347 pages. $4.00.*

THE MANUAL OF CLINICAL MYCOLOGY is one of the most useful and timely contributions to the field of medical mycology. It is recommended to every physician, medical student, and laboratory technician; it is a valuable guide for everyone interested in mycotic diseases and is eminently practical. The manual is well printed and sturdily and flexibly bound in cloth. It is made up of twenty-five chapters, the last two dealing with fundamentals of elementary mycology and contaminants. Mycologic, immunologic and dermatologic methods and a formulary are given in the appendix.

Each chapter on a particular species or a group of related species is divided into a number of sections as: source of infection, symptomatology, laboratory examination, culture, animal inoculation, mycologic diagnosis, pathology, immunology, differential diagnosis, prognosis and treatment, followed by a list of bibliographical references. More direct attention to prevention of infection would have been a valuable addition.

A great number of photographs of clinical features, pathology, and maps of geographic distribution of mycotic diseases are well reproduced. Illustrations of morphology and cultural characteristics of fungi should be valuable in diagnosing mycotic diseases.

Everyone who has had to deal with mycological classification of pathogenic fungi is well aware of the existing confusion in the nomenclature and classification. The authors have made a great effort and they have succeeded in clearing much of the existing difficulty in identifying a fungus and diagnosing the disease.

—*E. Kuitunen*

A Manual of Tropical Medicine. *Prepared under the auspices of the Division of Medical Sciences of the National Research Council. Colonel Thomas T. Mackie, M.C., A.U.S., Executive Officer, Tropical and Military Medicine, and Chief, Division of Parasitology, Army Medical School; Major George W. Hunter, III, Sn.C., A.U.S., Division of Parasitology, Army Medical School; and Captain C. Brooke Worth, M.C., A.U.S., Division of Parasitology, Army Medical School. Philadelphia and London: The W. B. Saunders Company, 1945. Canadian agents: McAinsh & Co. Limited, Toronto. 727 pages. $7.00.*

THIS is another manual in the excellent series which is being prepared under the auspices of the National Research Council by members of the staff of the Army Medical School, Washington. This concise, up-to-date, accurate treatise on tropical medicine was prepared primarily for use of medical personnel in the United States Army and Navy. The book will undoubtedly be used extensively in medical schools where courses in tropical medicine or parasitology are given. Civilian practitioners with an interest in, or need for up-to-date information on tropical medicine

will also like the book. Its value and comprehensiveness lies midway between Strong's fine text-book on tropical medicine and the abbreviated but most useful manual by Manson-Bahr.

The various diseases and animals of medical importance in the tropics are considered under ten section headings, e.g. viruses, bacteria, protozoa, nutrition, etc. Laboratory diagnostic methods are given in an eleventh section.

The book is profusely illustrated with charts and drawings which have been prepared especially to meet the needs of the medical student. Many of the illustrations are diagrammatic; nevertheless, the morphology of most is illustrated sufficiently accurately to make them useful for the identification of parasites. The epidemiology is especially well illustrated and summarized. Some of the pathological illustrations which show little detail might have been omitted without detracting from the value of the book. The distribution of many of the diseases is illustrated on a series of world maps. The recommended therapy includes the most recent established methods.

Well-marked headings and sub-headings, many cross-references, and a complete index make the book an easy one to use. One or two errors in cross-references were noted, but these can be corrected in the next edition. The printing is clear and on good paper and the flexible binding is a valuable feature.

This is one of the most useful books on tropical medicine which have appeared for some time and it is certain to be used widely. The authors have done a praiseworthy job of preparing such a compact, concisely and interestingly written manual. References are omitted, which is justified in a book of this type as they would add to the size of the volume. The authors and publishers have attained their objective, namely, to produce a book which would be useful in the field as well as in laboratories and schools and serve as a convenient summary for public health workers, epidemiologists and parasitologists. Seldom does a book of this quality appear at such a moderate price.

—Donald T. Fraser

Essentials of Allergy. *By Leo H. Criep, M.D. With a foreword by Robert A. Cooke, M.D. Montreal: J. B. Lippincott Company, 1945. 381 pages. $5.00.*

An excellent little book, somewhat more inclusive than the title suggests. The first chapter is devoted to a consideration of the broader subject of hypersensitiveness and in particular to a clarification of nomenclature. This, together with the presentation of a classification, should do much to alleviate the confusion which is so widespread in regard to this subject. Such confusion is not surprising, for the subject is relatively new in medicine, is still, in many aspects, controversial, receives very inadequate attention in undergraduate teaching programs, and the terminology in use is varied and perplexing. The design of this book as a manual or handbook, essentially practical in nature, clear and concise, with lengthy discussion of controversial issues avoided, is most helpful.

The second chapter is devoted to the subject of anaphylaxis, and its inclusion, as would be expected, enhances the value of the book as a teaching text. After a general consideration of allergy in the third chapter, the remainder of the work is given over to the various clinical phenomena such as pollen, bronchial, nasal, skin and other allergies. This large section should be most useful and informative for the general practitioner.

The final chapter—Diagnostic Skin Tests—is not the strongest in the book. The first three tests outlined—Schick, Dick and Schultz-Charlton—are not allergic in nature and are included only for the sake of completeness. Certain of the tests which have a basis in allergy are apparently included for the same reason, as they are of doubtful value. The treatment allotted this section is sketchy.

In regard to the Schick test toxin, m.f.d. is used in place of m.l.d. This is probably a typographical error. Elsewhere in the text the term immune bodies, usually considered synonymous with antibodies, is used to include antigens. Also, it is surprising to find the transfusion reations due to the Rh factor classed as allergic. This is surely open to a different interpretation.

Altogether this very readable treatise on allergy should contribute materially to a clearer understanding of the subject and be welcomed by student and physician alike. Indirectly it should profit the legions of allergy patients in terms of better diagnosis and treatment.

—F. O. Wishart

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